

You Want Me To Do What? How school districts are facing the competing demands for upgrade of information technology and cost savings.

District technology directors are being asked to pull off the impossible: optimize infrastructure while shearing off costs. Here's how some have turned modest investments into maximum results.

DERBY PUBLIC SCHOOLS, SERVING SUBURBAN WICHITA, KS, is about as much in the middle of the nation as any school district. So in that respect, you can trust that its technology director, Drew Lane, speaks for many when he says, "We have experienced significant budget cuts and we likely will see more. When we upgrade our IT, we also want to see associated cost savings."

It's a riddle faced by virtually every IT director: how to fulfill users' desire for more muscular computing resources while still obliging administrators' commands to keep education spending down. Meanwhile, taxpayers and their representatives demand accountability and frugality. As a result, every budget commitment has to be thought out and targeted, and must come with a few built-in risks.

"I always joke with people that the only things certain in educational technology are more mandates and less money," says Kyle Berger, executive director of technology services for Texas' Alvarado Independent School District. "And we've got to try to figure out what to do with that less money."

"There are so many temptations to make poor decisions--by cutting staff, for instance," says Christopher Reily, chief technology officer for CBE Technologies, a systems integrator with a focus on education. Districts also misfire by cutting back on IT services, or limiting access in an era when computing access can determine educational outcomes.

"What we believe is critical right now," Reily says, "is stepping back, taking a real look at your IT infrastructure, and asking yourself if what you have can meet the needs of your people. If not, what can you do to get there? Whatever you do, you will need to show a quick ROI, and whatever you buy needs to have a low total cost of ownership."

Against long odds, many tech directors have been fulfilling both counts, optimizing their computing systems with improvements that pay for themselves--or in some cases, as you'll see in this roundup of consummate IT optimization projects, actually do considerably better than break even.

PARTNER UP. Worst-case scenarios are ever on Berger's mind. Alvarado ISD sits in the center of the state, a well-charted tornado alley, and outages are common, so fears of a catastrophic event are not unfounded. Plus, Berger has a lot to lose. "We have a lot of technology in the school district and a vast amount of information that we need to protect," he says.

The district already had disaster recovery capabilities built into its IT infrastructure, and Berger had implemented a Compellent storage area network (SAN) to bring that entire infrastructure under one roof. But he wanted another layer of safety.

The thought of using off-site storage as a data protection solution was a notion that had initially come to him years earlier: As Hurricane Rita bore down on Texas in September 2005, Berger learned that some of the coastal schools were communicating with schools in areas out of harm's way, trying to find a way to off-load their data in advance of the storm. Berger says those steps prompted his district to put a similar prevention plan for its own data on its wish list.

"We always needed that ability to secure our data, but couldn't afford the high overhead of off-site storage," he says.

But he had an idea--one that required no investment at all. He turned to a school system with which he had collaborated before, Glen Rose Independent School District, located about 40 miles away, whose infrastructure and needs matched Alvarado's.

"I knew Glen Rose had a Compellent system in place, and we already had a good working relationship with them," he says. "Right in their backyard is a nuclear power plant, so they had to have a backup plan. It was a perfect fit to hook up with them."

He reached out to the district's IT director, Doug McClure, and 10 months ago the two men synced their Compellent systems and launched a mutual exchange of server space to back up each other's data. "I have 500 gigs on his side, he has 500 gigs on mine, and we just share our resources and send our data back and forth," Berger says. The information swap takes place at night, when the systems see little use anyway. "We are getting backed up for essentially zero extra cost."

The relationship between the two districts has not gone unnoticed. The online IT news publication InfoWorld named the data exchange one of the top 100 IT technology projects of 2009.

AUTOMATE. At Academy School District 20, which serves the northern portion of Colorado Springs, CO, CIO Shelley Kooser says that her big optimization project has been the implementation of Kbox, an appliance systems management solution from Kace, to manage the district's 8,000 computers, spread out across 28 schools in one of the largest districts in the state.

"We realized we could not keep operating as we had when we were a much smaller district," Kooser says. "We simply could no longer afford to send around techs to individually upgrade every machine with needed patches."

Kbox serves as a kind of IT sheriff for ASD 20, automating all the upgrades, which are delivered remotely at little cost and with minimal user disruption and aggravation. The system also tracks software licenses automatically, to make sure the district has all the

rights it needs but isn't paying for what it does not need. According to Kooser, with gains in labor productivity and reductions in travel cost and user downtime, the district achieved a total ROI on the appliance, and then some, in the first year of implementation (2006) alone, netting savings of more than \$45,000. What's more, IT personnel have been freed up to focus on bigger-picture, strategic issues surrounding how to deliver the services that district staff will need tomorrow.

"We had reached the point where we could not continue to do our required work in a timely manner," Kooser says. "Now, with Kbox, the routine work is done as needed, without user complaints, and we can think about what else we need to be doing."

TROUBLESHOOT REMOTELY. Another illustration of a discreet, outwardly modest step producing broad payoffs is the one Drew Lane instituted at Derby Public Schools, where Lane says the rollout of Kaseya automation software has transformed the operation of the district's technology infrastructure. As an example, before implementing Kaseya, the district operated hundreds of printers shared among its network users. The problem: Printer naming was dysfunctional. A user would hit print, a location would appear on the monitor--and then the hunt began for where the pages had popped out. Minutes could be wasted as the user inspected first one printer, then another. No more.

"With Kaseya, we have introduced a new naming convention that makes sense," Lane says, adding that it's tough to quantify the associated savings but they are not insignificant. "There's no more time spent hunting here and there."

More savings have come to Derby Schools from Kaseya's ability to troubleshoot IT problems remotely. "Before, we sent techs driving around to our various locations," says Lane, who counts 16 separate sites in the Derby system. He says users are enjoying better, more responsive service, with no added staffing, because drive time has been slashed. "All this helps make a big difference in the student experience," Lane says. "That's fundamentally what we are here to do."

CONSOLIDATE SERVICES. "Technology is curriculum," says Bruce Forster, executive director of educational technology and information services for Chelmsford Public Schools (MA). "School does not happen today without infrastructure."

Forster, however, has far more than the schools' IT to look after. That's because Chelmsford, located northwest of Boston, has put much of its infrastructure under one umbrella in order to provide a system that services all public users. The network provides support for business-critical applications and internet connectivity across 22 sites: town offices; fire, EMT, and police; two public library locations; and all nine Chelmsford K-12 buildings.

The arrangement came about when both the town and the district recognized that going it alone was to neither's advantage. "There was no way I was going to get the bandwidth I needed to provide services to all the kids in the school district," Forster says, "and there was no way the town was going to support a network with only one technician."

So in the 2007-2008 school year, the two sides entered into an agreement to install about 21 miles of high-speed fiber-optic cable, at a cost of \$500,000. The upshot is a superfast, supercapable network that was built to service users for the next decade and beyond. A single core switch--the Enterasys N7--in the district's main data center bifurcates all network activity: Town traffic goes to the town, and district traffic to the district, allowing, as Forster tells it, "both to drive the car at the same time."

The network also has a lot of built-in intelligence. At the Chelmsford Public Library, for instance, when a user logs in as a student the school district's content filters are activated. An adult logging into the same system would have unfettered access to content, in keeping with the library's wishes. Another plus is that at least some departments--police, fire, EMT--use network resources 24/7, whereas school needs are limited to a narrower range of hours.

The instructional value of this shared connectivity takes many forms. Consider the use of the public-access cable TV studio--which is located in one of the middle schools--and the public library. "We need to be able to stream video from the TV studio to all of our schools, and at the same time we need our students to have access to their My Documents folders from the public library," Forster explains. "Without this shared fiber resource we never would've been able to put that kind of thing together."

He names other capabilities the fiber has given his district, such as distance learning and the use of Google Earth in each of its classrooms. It's not the kind of initiative that has a quantifiable return on investment, but Forster is certain its value well exceeds the price tag.

"The half-million dollars--I think it was a steal," he says. "Having that connectivity gives us the ability to make things happen for kids in the schools that never would have happened without that fiber."

REACH FOR THE CLOUD. Down in eastern Kentucky, Maritta Horne, CIO of Pike County Schools, found herself facing tough choices. Set in the rural foothills of Appalachia, the district has 10,000 students in 27 schools, and 3,000 employees using some 6,000 computers. Costs were rising, as was demand for better tools. Many dozens of the district's desktop computers were 10 years old, running Windows 95, and some had no working hard drive--but there was no budget to replace them.

Enter IBM's cloud computing solutions. The core idea of cloud computing--to turn processing tasks over to the internet--had substantial appeal to Horne, with her legions of legacy boxes. Theoretically, any web-capable computer can function in a cloud.

"We had so many machines that basically were dead in the corner," Horne says, "but the cloud let them work again. I have Windows 95 operating systems working as if they were Windows Vista. They run everything just like the Vista machine sitting next to them, or an XP machine."

A crucial benefit of the cloud is that it can be accessed at home by both teachers and students, who can then enjoy computing capabilities similar to what they would get in a classroom. On any given day, Horne says up to 30 percent of students are out sick, so this ability to deliver education to their homes is paramount. She adds that 80 percent of students have high-speed internet access at home, and as long as they have a working computer they are ready to learn. "Every child needs access to computing services, and that is what we give them," Horne says.

But could Pike County afford an IBM cloud, the cost of which Horne puts at about \$1 million? It could because Horne would be able to dispense with all the upkeep on the now virtualized machines, which make up about a third of the network. She says the cost of maintaining, and inevitably replacing, some 2,000 old computers would surpass the price of the cloud.

Horne uses the six-pronged total cost of ownership calculation from IT research firm Gartner, factoring in purchasing, maintaining, and inevitably replacing the computers. "Overall, I'm saving about 62 percent for the life of the machines," she says. "The hardware alone, not counting installation and maintenance, would be \$1.2 million."

She adds that the savings increase further when you deduct the man hours and training costs to have a qualified tech person: "You couldn't buy a person who has the expertise that you need for this."

The district has worked diligently for several years to get to the point where Horne says it's at now, where all of its operations--student information system, instructional software, attendance keeping--are web-based. "As long as I can get a machine to the web," she says, "we can do anything."

MAKE A DEAL. At Creskill Public Schools, a northern New Jersey school district of 2,000 students, Director of Technology Kevin Whitney's advice boils down to a simple command: Shop around. That's how he managed to dramatically improve the district's IT while still enjoying a slight decrease in cost.

For years Whitney had blown off sales pitches from Optimum Lightpath, a regional broadband provider. Creskill was happy with its longtime provider, Verizon, and saw no reason to change. "Optimum Lightpath came to us five years ago," Whitney says. "We had no interest. Its prices were way too high."

But in 2008, the district's Verizon contract was nearing its end, and the company's fees for upping the system to a level Whitney believed was now needed were just not in the Creskill budget. He was in a difficult spot, needing more broadband but with no likelihood of seeing funding increases to pay for it. Discussions with Verizon to upgrade the network didn't go far. "The prices were through the roof," he says. "Just ridiculous."

Optimum Lightpath approached with a powerful proposal: higher speed at lower costs. Last February, Whitney decided to go for it, replacing Verizon's 3-Mbps ATM-based wide area network (WAN) connection with Lightpath's 1-GB fiber connection, and doubling internet connectivity speed, jumping from Verizon's 10-Mbps internet access to Lightpath's 20-Mbps circuit.

"It's the system we needed," Whitney says. "We converted in the middle of the school year, with no disruption to users. And we have so much more power."

The district now pays its new provider a flat fee of \$6,700 a month, which is roughly \$300 more a month than it was paying for the previous solution. But that was a monthly average, calculated by the district over a two-year period before making the changeover. Depending on usage, the voice charges "could be all over the map," Whitney says. "They could be \$700 one month, \$1,500 the next." In a really heavy month, overall costs could go as high as \$8,000. So Whitney says the district considers the new fixed monthly fee to be a cost reduction.

Creskill expects to see more savings as it implements more applications made possible by the power and speed of the new system. Off-site data replication, from one building to another, as part of a disaster recovery strategy is one idea, Whitney says. "We are planning to roll out many more web-based applications that will cut our IT costs further."

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